

4. (Amended) An inductor as claimed in claim 1, wherein the transition metal is one selected from the group consisting of iron (Fe), nickel (Ni), and cobalt (Co).

5. (Amended) An inductor as claimed in claim 1, wherein the carbon nanotube and/or carbon nanofiber is formed by one of a thermal decomposition method, a catalyst thermal decomposition method, a plasma vapor deposition method, and a hot-filament vapor deposition method.

6. (Amended) An inductor as claimed in claim 1, wherein the carbon nanotube and/or carbon nanofiber is doped with elements such as phosphorus (P), boron (B), silicon (Si), and nitrogen (N).

7. (Amended) An inductor comprising an aggregate of carbon nanotube and/or carbon nanofibers, in which the carbon nanotubes and/or carbon nanofibers respectively synthesized in a shape of coils are compressed, wherein the carbon nanotube and/or carbon nanofiber is synthesized between catalysts fixed at desired locations on a substrate.

8. (Amended) An inductor as claimed in claim 7, wherein the carbon nanotubes and/or carbon nanofibers are formed by one of a thermal decomposition method, a catalyst thermal decomposition method, a plasma vapor deposition method, and a hot-filament vapor deposition method.

9. (Amended) An inductor as claimed in claim 7, wherein the carbon nanotubes and/or carbon nanofibers are doped with elements such as phosphorus (P), boron (B), silicon (Si), and nitrogen (N).

10. (Amended) An inductor comprising a complex of carbon nanotubes and/or carbon nanofibers and a matrix such as an insulator, a ceramic, and a semiconductor, the carbon nanotubes and/or carbon nanofibers being synthesized respectively in a shape of a coil, wherein the matrix is ferrite, and wherein the complex contains magnetic powder such as ferrite powder added in the complex.

11. (Amended) An inductor as claimed in claim 10, wherein the carbon nanotubes and/or carbon nanofibers are formed by one of a thermal decomposition method, a catalyst thermal decomposition method, a plasma vapor deposition method, and a hot-filament vapor deposition method.

12. (Amended) An inductor as claimed in claim 10, wherein the carbon nanotubes and/or carbon nanofibers are doped with elements such as phosphorus (P), boron (B), silicon (Si), and nitrogen (N).